

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
25 March 2004 (25.03.2004)

PCT

(10) International Publication Number
WO 2004/025832 A1

(51) International Patent Classification⁷: **H03H 9/17**

(21) International Application Number:
PCT/IB2003/003993

(22) International Filing Date:
1 September 2003 (01.09.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
02256348.0 12 September 2002 (12.09.2002) EP

(71) Applicant (for DE only): **PHILIPS INTELLECTUAL
PROPERTY & STANDARDS GMBH** [DE/DE]; Stein-
damm 94, 20099 Hamburg (DE).

(71) Applicant (for all designated States except DE, US):
KONINKLIJKE PHILIPS ELECTRONICS N.V.
[NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven
(NL).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **LÖBL, Hans, Peter**
[DE/DE]; c/o Philips Intellectual Property & Standards
GmbH, Weissshausstr. 2, 52066 Aachen (DE). **MILSOM,
Robert, Frederick** [GB/DE]; c/o Philips Intellectual Prop-
erty & Standards GmbH, Weissshausstr. 2, 52066 Aachen
(DE). **METZMACHER, Christof** [DE/DE]; c/o Philips
Intellectual Property & Standards GmbH, Weissshausstr. 2,
52066 Aachen (DE). **BRAND, Hans-Wolfgang** [DE/DE];

c/o Philips Intellectual Property & Standards GmbH,
Weissshausstr. 2, 52066 Aachen (DE). **KLEE, Mareike,**
Katharine [DE/DE]; c/o Philips Intellectual Property &
Standards GmbH, Weissshausstr. 2, 52066 Aachen (DE).
KIEWITT, Rainer [DE/DE]; c/o Philips Intellectual
Property & Standards GmbH, Weissshausstr. 2, 52066
Aachen (DE).

(74) Agent: **MEYER, Michael**; Philips Intellectual Property &
Standards GmbH, Weissshausstr. 2, 52066 Aachen (DE).

(81) Designated States (national): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC,
SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA,
UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

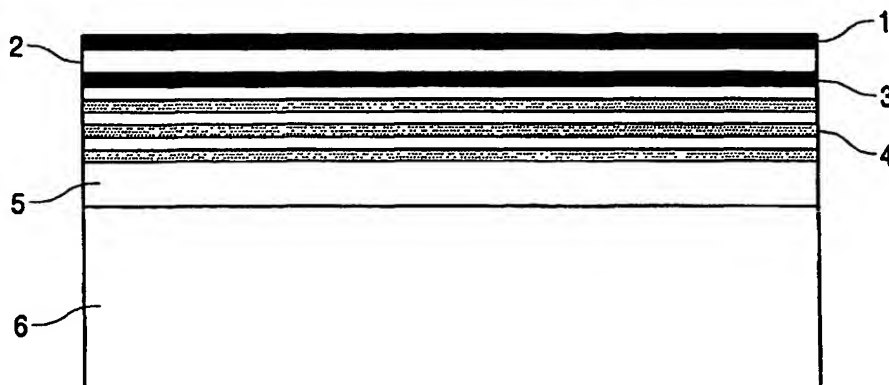
(84) Designated States (regional): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: **BULK ACOUSTIC WAVE RESONATOR WITH MEANS FOR SUPPRESSION OF PASS-BAND RIPPLE IN BULK
ACOUSTIC WAVE FILTERS**



(57) Abstract: A bulk acoustic wave resonator comprising a substrate (5), a Bragg reflector (4), a top (1) and a bottom (3) electrode and a piezoelectric layer (2) with means for suppression of the pass-band ripples in a bulk acoustic wave filter. The means for absorbing or scattering the spurious modes are a roughened rear side of the substrate (6), an absorbing layer (5) disposed on the rear side of the substrate (6) and/or an absorbing layer (5) disposed on the front side of the substrate.

WO 2004/025832 A1